



---

## Symbols

- \$ matches the end of a string [7](#)
- () in commands [10](#)
- \* matches 0 or more sequences of a pattern [7](#)
- + matches 1 or more sequences of a pattern [7](#)
- . matches any single character [7](#)
- ? command [1](#)
- ? matches 0 or 1 occurrence of a pattern [7](#)
- ^ matches the beginning of a string [7](#)
- \_ matches a comma (,), left brace ({}), left parenthesis [7](#)
- “ [10](#)

---

## Numerics

- 10-Gigabit Ethernet uplink
  - selecting [114](#)
  - showing the mode [320](#)
- 802.1Q trunk ports and native VLANs [569](#)
- 802.1Q tunnel ports
  - configuring [526](#)
- 802.1S Multiple Spanning Tree
  - see MST
- 802.1X
  - configuring for multiple hosts [88](#)
  - configuring for single host [88](#)
  - configuring multiple domains [88](#)
- 802.1X Port Based Authentication
  - debugging 802.1X Port Based Authentication [50](#)
  - displaying port based authentication [306](#)
  - enabling accounting for authentication sessions [3](#)
  - enabling authentication on the system [97](#)
  - enabling guest VLAN [86](#)

- enabling guest VLAN supplicant [84, 87](#)
- enabling manual control of auth state [93](#)
- enabling periodic re-authentication of the client [96](#)
- initializing re-authentication of dot1x ports [95](#)
- initializing state machines [90](#)
- receive session termination message upon reboot [4](#)
- setting maximum number for EAP requests [92](#)
- setting the reauthentication timer [98](#)

---

## A

- abbreviating commands
  - context-sensitive help [1](#)
- Access Gateway Module
  - connecting to a module [11](#)
  - connecting to a remote module [265](#)
  - connecting to a specific remote module [273](#)
- access-group
  - displaying mac interface [393](#)
  - show mode interface [277](#)
- access groups
  - IP [5](#)
- access lists
  - clearing an access template [27](#)
  - defining ARP [10](#)
  - displaying ARP information [280](#)
  - See also ACLs, MAC ACLs, and VACLs
- access maps
  - applying with VLAN filter [570](#)
- ACLs
  - access-group mode [5](#)
  - determining ACL hardware programming [6](#)
  - displaying mac access-group interface [393](#)

- using ACL naming conventions for MAC ACLs [187](#)
- action clause
  - specifying drop or forward action in a VACL [8](#)
- addresses, configuring a maximum [235](#)
- adjacency
  - debugging the adjacency table [44](#)
  - disabling the debug facility [44](#)
  - displaying information about the adjacency table [278](#)
  - displaying IPC table entries [44](#)
- aggregate policer
  - displaying information [432](#)
- aging time
  - displaying MAC address aging time [396](#)
  - MAC address table [190](#)
- alarms
  - displaying operational status [309](#)
- alternation
  - description [9](#)
- anchoring
  - description [10](#)
- ARP
  - access list, displaying detailed information [280](#)
  - defining access-lists [10](#)
- ARP inspection
  - enforce certain types of checking [132](#)
- ARP packet
  - deny based on DHCP bindings [80](#)
  - permit based on DHCP bindings [221](#)
- authentication
  - setting username [560](#)
  - using an MD5-type encryption method [560](#)
  - verifying MD5 signature [561](#)
  - verifying the checksum for Flash memory [561](#)
- auth fail VLAN
  - enable on a port [85](#)
  - set max number of attempts [84](#)
- authorization state
  - enabling manual control [93](#)
- authorization state of a controlled port [93](#)

- automatic installation
  - displaying status [281](#)
- auto-negotiate interface speed
  - example [517](#)
- auto-QoS
  - configuring for VoIP [12](#)
  - displaying configuration [282](#)

---

## B

- baby giants
  - displaying the system MTU setting [457](#)
  - setting the maximum Layer 2 payload size [543](#)
- BackboneFast
  - displaying debugging messages [69](#)
  - displaying spanning tree status [448](#)
  - enabling debugging [69](#)
- bindings
  - store for DHCP snooping [141](#)
- BOOT environment variable
  - displaying information [286](#)
- bootflash
  - displaying information [284](#)
- BPDU s
  - debugging spanning tree activities [68](#)
- bridge protocol data units
  - See BPDU s
- broadcast suppression level
  - configuring [518, 520](#)
  - enabling [518, 520](#)

---

## C

- cable diagnostics
  - TDR
    - displaying test results [287](#)
    - testing conditions of copper cables [544](#)
- Catalyst 4507R [231](#)

- power redundancy mode [236](#)
  - CDP
    - configuring tunneling encapsulation rate [177](#)
    - displaying
      - neighbor information [289](#)
    - enabling protocol tunneling for [173](#)
    - set drop threshold for [175](#)
  - CEF
    - displaying next-hop information [353](#)
    - displaying VLAN configuration information [353](#)
  - cisco-desktop
    - macro apply [196](#)
  - Cisco Express Forwarding
    - See CEF
  - cisco-phone
    - macro apply [198](#)
  - cisco-router
    - macro apply [200](#)
  - cisco-switch
    - macro apply [202](#)
  - clear commands
    - clearing Gigabit Ethernet interfaces [25](#)
    - clearing IGMP group cache entries [32](#)
    - clearing interface counters [22](#)
    - clearing IP access lists [27, 28](#)
    - clearing IP ARP inspection statistics VLAN [29](#)
    - clearing IP DHCP snooping database [30](#)
    - clearing IP DHCP snooping database statistics [31](#)
    - clearing MFIB counters and routes [35](#)
    - clearing MFIB fastdrop entries [36](#)
    - clearing PAgP channel information [39](#)
    - clearing QoS aggregate counters [41](#)
    - clearing VLAN interfaces [26](#)
  - CLI string search
    - anchoring [10](#)
    - expressions [7](#)
    - filtering [6](#)
    - multiple-character patterns [8](#)
    - multipliers [9](#)
    - parentheses for recall [10](#)
    - searching outputs [6](#)
    - single-character patterns [7](#)
    - using [6](#)
  - command modes
    - accessing privileged EXEC mode [4](#)
    - exiting [4](#)
    - understanding user EXEC and configuration modes [4](#)
  - condition interface
    - debugging interface-related activities [46](#)
  - condition vlan
    - debugging VLAN output [49](#)
  - configuration, saving [11](#)
  - configuring
    - root as secondary [501](#)
  - configuring a SPAN session to monitor
    - limit SPAN source traffic [213](#)
  - configuring forward delay [497](#)
  - configuring root as primary [501](#)
  - CoS
    - assigning to Layer 2 protocol packets [174](#)
  - CoS QoS default
    - defining value on an interface [249](#)
  - Cost of Service
    - See QoS CoS
  - counters
    - clearing interface counters [22](#)
- 
- D**
  - DAI
    - clear statistics [29](#)
  - DBL
    - displaying qos dbl [433](#)
    - enabling DBL globally on the switch [250](#)
  - debug commands
    - debugging backup events [45](#)
    - debugging DHCP snooping events [55](#)
    - debugging DHCP snooping messages [56](#)

- debugging EtherChannel/PAgP/shim [51](#)
- debugging IPC activity [54](#)
- debugging IP DHCP snooping security messages [57](#)
- debugging NVRAM activities [60](#)
- debugging PAgP activities [61](#)
- debugging port manager activities [64](#)
- debugging software MAC filter updates [67](#)
- debugging spanning tree activities [68](#)
- debugging spanning tree backbonefast [69](#)
- debugging spanning tree UplinkFast [72](#)
- debugging supervisor redundancy [66](#)
- debugging VLAN manager activities [73](#)
- displaying monitor activity [59](#)
- displaying the adjacency table [44](#)
- enabling debug dot1x [50](#)
- enabling debugging messages for ISL VLAN IDs [75](#)
- enabling debugging messages for VTP [76](#)
- enabling debugging of UDLD activity [77](#)
- enabling switch shim debugging [70](#)
- enabling VLAN manager file system error tests [74](#)
- limiting debugging output for VLANs [49](#)
- limiting interface debugging output [46](#)
- limiting output for debugging standby state changes [47](#)
- shortcut to the debug condition interface [53](#)
- debugging
  - activity monitoring [59](#)
  - DHCP snooping events [55](#)
  - DHCP snooping packets [56](#)
  - IPC activities [54](#)
  - IP DHCP snooping security packets [57](#)
  - NVRAM activities [60](#)
  - PAgP activities [61](#)
  - PAgP shim [51](#)
  - PM activities [64](#)
  - SMF address insertions and deletions [67](#)
  - spanning tree BackboneFast events [69](#)
  - spanning tree switch shim [70](#)
  - spanning tree UplinkFast events [72](#)
  - VLAN manager activities [73](#)
  - VLAN manager IOS file system error tests [74](#)
  - VTP protocol debug messages [76](#)
- debug spanning tree switch [70](#)
- debug sw-vlan vtp [76](#)
- default CoS value [249](#)
- default form of a command, using [6](#)
- defining egress DSCP-to-CoS mapping [255](#)
- DHCP
  - clearing database statistics [31](#)
- DHCP bindings
  - configuring bindings [140](#)
  - deny ARP packet based on matches [80](#)
  - permit ARP packet based on matches [221](#)
- DHCP snooping
  - clearing database [30](#)
  - displaying binding table [355](#)
  - displaying configuration information [354](#)
  - displaying status of DHCP database [358](#)
  - displaying status of error detection [312](#)
  - enabling DHCP globally [139](#)
  - enabling IP source guard [171](#)
  - enabling on a VLAN [147](#)
  - enabling option 82 [143, 144](#)
  - enabling rate limiting on an interface [145](#)
  - enabling trust on an interface [146](#)
  - establishing binding configuration [140](#)
  - renew binding database [267](#)
  - store generated bindings [141](#)
- diagnostic test
  - bootup packet memory [300](#)
  - displaying attributes [294](#)
  - display module-based results [296](#)
  - running [83](#)
  - show results for TDR [287](#)
  - testing conditions of copper cables [544](#)
- displaying error disable recovery [313](#)
- displaying inline power status [424](#)
- displaying monitoring activity [59](#)
- displaying SEEPROM information

- GBIC [321](#)
- displaying SPAN session information [456, 519](#)
- document conventions [16](#)
- document organization [15](#)
- DOS attack
  - protecting system's resources [127](#)
- drop threshold, Layer 2 protocol tunneling [175](#)
- DSCP rewrite for IP packets
  - enable [258](#)
- dual-capable port
  - selecting a connector [210](#)
- duplex mode
  - configuring autonegotiation on an interface [100](#)
  - configuring full duplex on an interface [100](#)
  - configuring half duplex on an interface [100](#)
- dynamic ARP inspection
  - preventing [127](#)
- Dynamic Buffer Limiting
  - See DBL
- Dynamic Host Configuration Protocol
  - See DHCP

---

## E

- EAP
  - restarting authentication process [92](#)
- enabling
  - debugging for UDLD [77](#)
  - voice VLANs [521](#)
- environmental
  - alarms [309](#)
  - displaying information [309](#)
  - status [309](#)
  - temperature [309](#)
- erase a file [102](#)
- error disable detection
  - enabling error disable detection [105](#)
- error-disabled state
  - displaying [339](#)

- error disable recovery
  - configuring recovery mechanism variables [107](#)
  - displaying recovery timer information [313](#)
  - enabling ARP inspection timeout [107](#)
  - specifying recovery cause [107](#)
- EtherChannel
  - assigning interfaces to EtherChannel groups [16](#)
  - debugging EtherChannel [51](#)
  - debugging PAgP shim [51](#)
  - debugging spanning tree activities [68](#)
  - displaying information for a channel [314](#)
  - removing interfaces from EtherChannel groups [16](#)
- EtherChannel guard
  - detecting STP misconfiguration [488](#)
- Explicit Host Tracking
  - clearing the database [34](#)
  - enabling per-VLAN [158](#)
- expressions
  - matching multiple expression occurrences [9](#)
  - multiple-character patterns [8](#)
  - multiplying pattern occurrence [10](#)
  - single-character patterns [7](#)
- Extensible Authentication Protocol
  - See EAP

---

## F

- field replaceable unit (FRU)
  - displaying status information [309](#)
- Flash memory file system
  - displaying file system information [284](#)
  - verifying checksum [561](#)
- flow control
  - configuring a gigabit interface for pause frames [110](#)
  - displaying per-interface statistics for flow control [318](#)

**G**

## GBIC

displaying SEEPROM information [321](#)

## Gigabit Ethernet interface

clearing the hardware logic [25](#)

## Gigabit Ethernet uplink

selecting [114](#)

showing the mode [320](#)

## global configuration mode

using [5](#)

**H**

## hardware module

resetting a module by toggling the power [113](#)

## hardware uplink

selecting the mode [114](#)

showing the mode [320](#)

helper addresses, IP [372](#)

## hot standby protocol

debugging [47](#)

disabling debugging [47](#)

limiting output [47](#)

**I**

## IDPROMs

displaying SEEPROM information

chassis [321](#)

clock module [321](#)

fan trays [321](#)

module [321](#)

mux buffer [321](#)

power supplies [321](#)

supervisor engine [321](#)

## ifIndex persistence

clearing SNMP ifIndex commands [477](#)

compress SNMP ifIndex table format [482](#)

disabling globally [481](#)

disabling on an interface [478](#)

enabling globally [481](#)

enabling on an interface [478](#)

## IGMP

applying filters for host joining on Layer 2 interfaces [149](#)

clearing IGMP group cache entries [32](#)

configuring frequency for IGMP host-query messages [152](#)

creating an IGMP profile [151](#)

displaying IGMP interface configuration information [360](#)

displaying profiles [362](#)

setting maximum group numbers [150](#)

## IGMP profiles

displaying [362](#)

## IGMP snooping

clearing the EHT database [34](#)

configuring a Layer 2 interface as a group member [162](#)

configuring a Layer 2 interface as a multicast router [160](#)

configuring a static VLAN interface [162](#)

displaying multicast information [369](#)

displaying VLAN information [363, 367, 370](#)

enabling [153](#)

enabling immediate-leave processing [159](#)

enabling on a VLAN [157](#)

enabling per-VLAN Explicit Host Tracking [158](#)

## informs

enabling [479](#)

## inline power

displaying inline power status [424](#)

## inspection log

clearing log buffer [28](#)

## interface

displaying suppressed multicast bytes [333](#)

## interface capabilities

displaying [330](#)

## interface configuration mode

summary [5](#)

- interface link
    - display cable disconnect time [336](#)
  - interfaces
    - configuring dot1q tunnel ports [526](#)
    - creating an interface-range macro [79](#)
    - debugging output of interface related activities [46](#)
    - displaying description [335](#)
    - displaying error-disabled state [339](#)
    - displaying information when tunneling is enabled [387](#)
    - displaying status [335](#)
    - displaying traffic for a specific interface [327](#)
    - entering interface configuration mode [119](#)
    - executing a command on multiple ports in a range [122](#)
    - selecting an interface to configure [119](#)
    - setting a CoS value for Layer 2 packets [174](#)
    - setting drop threshold for Layer 2 packets [175](#)
    - setting the interface type [526](#)
  - interface speed
    - configuring interface speed [515](#)
  - interface transceiver
    - displaying diagnostic data [342](#)
  - internal VLAN allocation
    - configuring [571](#)
    - default setting [571](#)
    - displaying allocation information [468](#)
  - Internet Group Management Protocol
    - See IGMP
  - IP ARP
    - applying ARP ACL to VLAN [125](#)
    - clearing inspection statistics [29](#)
    - clearing status of log buffer [28](#)
    - controlling packet logging [135](#)
    - enabling dynamic inspection [134](#)
    - limit rate of incoming requests [127](#)
    - set per-port config trust state [131](#)
    - showing status of dynamic ARP inspection [349](#)
    - showing status of log buffer [352](#)
  - IPC
    - debugging IPC activities [54](#)
  - IP DHCP Snooping
    - See DHCP snooping
  - IP header validation
    - disabling [170](#)
    - enabling [170](#)
  - IP interfaces
    - displaying usability status [371](#)
  - IP multicast
    - displaying multicast routing table information [377](#)
  - IP packets
    - enable DSCP rewrite [258](#)
  - IP phone and standard desktop
    - enabling Cisco-recommended features [198](#)
  - IP source binding
    - adding or deleting [167](#)
    - displaying bindingstagging [382](#)
  - IP source guard
    - debugging messages [57](#)
    - displaying configuration and filters [383](#)
    - enabling on DHCP snooping [171](#)
- 
- ## J
- Jumbo frames
    - enabling jumbo frames [217](#)
- 
- ## L
- LACP
    - deselecting channeling protocol [18](#)
    - enabling LACP on an interface [18](#)
    - setting channeling protocol [18](#)
  - Layer 2
    - displaying ACL configuration [393](#)
  - Layer 2 interface type
    - specifying a nontrunking, nontagged single VLAN interface [526](#)
    - specifying a trunking VLAN interface [526](#)
  - Layer 2 protocol ports

- displaying [387](#)
- Layer 2 protocol tunneling error recovery [177](#)
- Layer 2 switching
  - enabling voice VLANs [521](#)
  - modifying switching characteristics [521](#)
- Layer 2 traceroute
  - IP addresses [549](#)
- Layer 3 switching
  - displaying information about an adjacency table [278](#)
  - displaying port status [340](#)
  - displaying status of native VLAN tagging [340](#)
- link-status event messages
  - disabling
    - globally [181, 184](#)
    - on an interface [182, 185](#)
  - enabling
    - globally [181, 184](#)
    - on an interface [182, 185](#)
- log buffer
  - show status [352](#)
- logging
  - controlling IP ARP packets [135](#)

---

## M

### MAC Access Control Lists

See MAC ACLs

### MAC ACLs

- defining extended MAC access list [187](#)
- displaying MAC ACL information [465](#)
- naming an ACL [187](#)

### MAC address filtering

- configuring [194](#)
- disabling [194](#)
- enabling [194](#)

### MAC address table

- adding static entries [204](#)
- clearing dynamic entries [38](#)
- configuring aging time [190](#)

- displaying dynamic table entry information [398](#)
- displaying entry count [397](#)
- displaying information [394](#)
- displaying interface-based information [400](#)
- displaying multicast information [402](#)
- displaying protocol-based information [404](#)
- displaying static table entry information [406](#)
- displaying the MAC address aging time [396](#)
- displaying VLAN-based information [408](#)
- learning in the protocol buckets [191](#)
- removing static entries [204](#)

### MAC address tables

- adding static entries [194](#)
- deleting secure or specific addresses [40](#)
- disabling IGMP snooping on static MAC addresses [194](#)
- removing static entries [194](#)

### mac-address-table static [194](#)

### MAC address unicast filtering

- dropping unicast traffic [194](#)

### macro keywords

- help strings [2](#)

### mapping secondary VLANs to MST instance [241](#)

### mapping VLAN(s) to an MST instance [116](#)

### match subcommand

- accessing [20](#)

### maximum transmission unit (MTU)

- displaying the system MTU setting [457](#)
- setting the maximum Layer 2 payload size [543](#)

### MD5

- verifying MD5 signature [561](#)

### message digest 5

See MD5

### MFIB

- clearing ip mfib counters [35](#)
- clearing ip mfib fastdrop [36](#)
- displaying all active MFIB routes [374](#)
- displaying MFIB fastdrop table entries [376](#)
- enabling IP MFIB fastdrops [164](#)

### modes



access-group [5](#)  
 show access-group interface [277](#)  
 switching between PVST+, MST, and Rapid PVST [493](#)  
 See also command modes  
 module password clearing [24](#)  
 module reset  
   resetting a module by toggling the power [113](#)  
 --More-- prompt  
   filter [6](#)  
   search [7](#)  
 MST  
   designating the primary and secondary root [501](#)  
   displaying MST protocol information [452](#)  
   displaying region configuration information [452](#)  
   displaying spanning tree information [452](#)  
   entering MST configuration submode [495](#)  
   setting configuration revision number [269](#)  
   setting path cost and port priority for instances [494](#)  
   setting the forward delay timer for all instances [497](#)  
   setting the hello-time delay timer for all instances [498](#)  
   setting the max-age timer for all instances [499](#)  
   setting the MST region name [218](#)  
   specifying the maximum number of hops [500](#)  
   switching between PVST+ and Rapid PVST [493](#)  
   using the MST configuration submode revision command [269](#)  
   using the submode name command [218](#)  
 MTU  
   displaying global MTU settings [457](#)  
 multicast  
   enabling storm control [520](#)  
 multicast/unicast packets  
   prevent forwarding [525](#)  
 Multicast Forwarding Information Base  
   See MFIB  
 multiple-character patterns [8](#)  
 Multiple Spanning Tree  
   See MST

---

## N

native VLAN  
   controlling tagging of traffic [539](#)  
   displaying ports eligible for native tagging [467](#)  
   displaying ports eligible for tagging [467](#)  
   enabling tagging on 802.1Q trunk ports [569](#)  
   specifying the tagging of traffic [540](#)  
 NetFlow  
   enabling NetFlow statistics [165](#)  
   including infer fields in routing statistics [165](#)  
 next-hop  
   displaying CEF VLAN information [353](#)  
 no form of a command, using [6](#)  
 NVRAM  
   debugging NVRAM activities [60](#)

---

## O

output  
   pattern searches [7](#)

---

## P

packet forwarding  
   prevent unknown packets [525](#)  
 packet memory failure  
   direct switch action upon detection [82](#)  
 packet memory test  
   bootup, displaying results [300, 302](#)  
   ongoing, displaying results [304](#)  
 PACL  
   access-group mode [5](#)  
 paging prompt  
   see --More-- prompt  
 PAgP  
   clearing port channel information [39](#)  
   debugging PAgP activity [61](#)  
   deselecting channeling protocol [18](#)

- displaying port channel information [414](#)
- hot standby mode
  - returning to defaults [220](#)
  - selecting ports [220](#)
- input interface of incoming packets
  - learning [219](#)
  - returning to defaults [219](#)
- setting channeling protocol [18](#)
- parentheses [10](#)
- password
  - clearing on an intelligent line module [24](#)
  - establishing enhanced password security [560](#)
  - setting username [560](#)
- PBR
  - displaying route maps [16](#)
  - redistributing route maps [16](#)
- PM activities
  - debugging [64](#)
  - disabling debugging [64](#)
- Policy Based Routing
  - See PBR
- port, dual-capable
  - selecting the connector [210](#)
- Port Aggregation Protocol
  - See PAgP
- port-based authentication
  - displaying debug messages [50](#)
  - displaying statistics and status [306](#)
  - enabling 802.1X [93](#)
  - host modes [88](#)
  - manual control of authorization state [93](#)
  - periodic re-authentication
    - enabling [96](#)
  - re-authenticating 802.1X-enabled ports [95](#)
  - switch-to-client frame-retransmission number [92](#)
- port channel
  - accessing [121](#)
  - creating [121](#)
  - displaying information [414](#)
  - load distribution method
    - resetting to defaults [225](#)
    - setting [225](#)
- port range
  - executing [122](#)
- port security
  - debugging ports security [65](#)
  - deleting secure or specific addresses [40](#)
  - displaying settings for an interface or switch [421](#)
  - enabling [528](#)
  - filter source IP and MAC addresses [171](#)
  - setting action upon security violation [528](#)
  - setting the rate limit for bad packets [528](#)
  - sticky port [528](#)
- Port Trust Device
  - displaying [434](#)
- power status
  - displaying inline power [424](#)
  - displaying power status [424](#)
- power supply
  - configuring combined and redundant power on the Catalyst 4507R [231](#)
  - configuring inline power [228](#)
  - configuring power consumption [230](#)
  - configuring power redundancy on the Catalyst 4507R [236](#)
  - displaying the SEEPROM [321](#)
  - setting inline power state [227](#)
- Private VLAN
  - See PVLANS
- privileged EXEC mode, summary [5](#)
- prompts
  - system [5](#)
- protocol tunneling
  - configuring encapsulation rate [177](#)
  - disabling [173](#)
  - displaying port information [387](#)
  - enabling [173](#)
  - setting a CoS value for Layer 2 packets [174](#)

setting a drop threshold for Layer 2 packets [175](#)

## PVLANs

configuring isolated, primary, and community PVLANs [237](#)

controlling tagging of native VLAN traffic [539](#)

disabling sticky-ARP [168](#)

displaying map information for VLAN SVIs [338](#)

displaying PVLAN information [470](#)

enabling interface configuration mode [526](#)

enabling sticky-ARP [168](#)

mapping VLANs to the same SVI [239](#)

specifying host ports [526](#)

specifying promiscuous ports [526](#)

## PVST+

switching between PVST and MST [493](#)

## Q

### QoS

account Layer 2 encapsulation [244](#)

attaching a policy-map to an interface [270](#)

automatic configuration [12](#)

clearing aggregate counters [41](#)

configuring a QoS policy map [223](#)

configuring auto [12](#)

defining a named aggregate policer [246](#)

defining default CoS value [249](#)

defining ingress CoS-to-DSCP mapping [253](#)

displaying aggregate policer information [432](#)

displaying auto configuration [282](#)

displaying class maps information [292](#)

displaying configuration information [282](#)

displaying configurations of policies [417](#)

displaying policy map information [416, 420](#)

displaying QoS information [431](#)

displaying QoS map information [435](#)

enabling global configuration mode [242](#)

enabling per-VLAN QoS for a Layer 2 interface [261](#)

enabling QoS on an interface [243](#)

mapping DSCP values to transmit queues [255](#)

mapping egress DSCP-to-CoS [255](#)

mapping the DSCP-to-CoS value [255](#)

setting the mapping of policed DSCP values [257](#)

setting the trust state [259](#)

specifying flow-based match criteria [206](#)

### QoS CoS

configuring for tunneled Layer 2 protocol packets [174](#)

defining default CoS value [249](#)

qos dbl [250](#)

question command [1](#)

queueing information

displaying [434](#)

## R

### Rapid PVST

switching between PVST and MST [493](#)

re-authenticating 802.1X-enabled ports [95](#)

re-authentication

periodic [96](#)

set the time [98](#)

reboots

restoring bindings across [140](#)

redundancy

accessing the main CPU [262](#)

changing from active to standby supervisor engine [263](#)

displaying information [437](#)

displaying redundancy facility information [437](#)

displaying RF client list [437](#)

displaying RF operational counters [437](#)

displaying RF states [437](#)

enabling automatic synchronization [15](#)

forcing switchover to standby supervisor engine [263](#)

set the mode [211](#)

synchronizing the route processor configurations [204](#)

related documentation [15](#)

remote SPAN

See RSPAN

- renew commands
    - ip dhcp snooping database [267](#)
  - resetting PVLAN trunk
    - setting switchport to trunk [526](#)
  - rj45 connector, selecting the connector [210](#)
  - ROM monitor mode
    - summary [6](#)
  - Route Processor Redundancy
    - See redundancy
  - RPR
    - set the redundancy mode [211](#)
  - RSPAN
    - converting VLAN to RSPAN VLAN [266](#)
    - displaying list [472](#)
- 
- S**
- saving configuration changes [11](#)
  - secure address, configuring [233](#)
  - secure ports, limitations [529](#)
  - set the redundancy mode [211](#)
  - sfp connector, selecting the connector [210](#)
  - show commands
    - filtering parameters [7](#)
    - searching and filtering [6](#)
    - show platform commands [11](#)
  - Simple Network Management Protocol
    - See SNMP
  - single-character patterns
    - special characters [7](#)
  - slaveslot0
    - displaying information on the standby supervisor [444](#)
  - slot0
    - displaying information about the system [446](#)
  - SMF
    - debugging address insertions and deletions [67](#)
  - SNMP
    - debugging spanning tree activities [68](#)
    - ifIndex persistence
      - clearing SNMP ifIndex commands [477](#)
      - compress SNMP ifIndex table format [482](#)
      - disabling globally [481](#)
      - disabling on an interface [478](#)
      - enabling globally [481](#)
      - enabling on an interface [478](#)
    - informs
      - disabling [479](#)
      - enabling [479](#)
    - traps
      - configuring to send when storm occurs [518](#)
      - disabling [479](#)
      - enabling [479](#)
  - software MAC filter
    - See SMF
  - SPAN commands
    - configuring a SPAN session to monitor [213](#)
    - displaying SPAN session information [456, 519](#)
  - SPAN enhancements
    - displaying status [412](#)
  - Spanning Tree Protocol
    - See STP
  - SPAN session
    - displaying session information [412](#)
    - filter ACLs [213](#)
    - specify encap type [213](#)
    - turn off host learning based on ingress packets [213](#)
  - special characters
    - anchoring, table [10](#)
  - SSO [211](#)
  - standard desktop
    - enabling Cisco-recommended features [196](#)
  - standard desktop and Cisco IP phone
    - enabling Cisco-recommended features [198](#)
  - sticky address, configuring [234](#)
  - sticky-ARP
    - disabling on PVLANS [168](#)
    - enabling on PVLANS [168](#)
  - sticky port

- deleting [40](#)
  - enabling security [528](#)
  - storm control
    - configuring for action when storm occurs [518](#)
    - disabling suppression mode [312](#)
    - displaying settings [455](#)
    - enabling [518](#)
    - enabling broadcast [518, 520](#)
    - enabling multicast [518, 520](#)
    - enabling suppression mode [312](#)
    - enabling timer to recover from error disable [107](#)
    - enabling unicast [518, 520](#)
    - multicast, enabling [520](#)
    - setting high and low levels [518](#)
    - setting suppression level [312](#)
  - STP
    - configuring link type for a port [491](#)
    - configuring tunneling encapsulation rate [177](#)
    - debugging all activities [68](#)
    - debugging spanning tree activities [68](#)
    - debugging spanning tree BackboneFast events [69](#)
    - debugging spanning tree UplinkFast [72](#)
    - detecting misconfiguration [488](#)
    - displaying active interfaces only [448](#)
    - displaying BackboneFast status [448](#)
    - displaying bridge status and configuration [448](#)
    - displaying spanning tree debug messages [68](#)
    - displaying summary of interface information [448](#)
    - enabling BPDU filtering by default on all PortFast ports [506](#)
    - enabling BPDU filtering on an interface [484](#)
    - enabling BPDU guard by default on all PortFast ports [508](#)
    - enabling BPDU guard on an interface [486](#)
    - enabling extended system ID [489](#)
    - enabling loop guard as a default on all ports [492](#)
    - enabling PortFast by default on all access ports [509](#)
    - enabling PortFast mode [504](#)
    - enabling protocol tunneling for [173](#)
    - enabling root guard [490](#)
    - enabling spanning tree BackboneFast [483](#)
    - enabling spanning tree on a per VLAN basis [513](#)
    - enabling spanning tree UplinkFast [511](#)
    - setting an interface priority [510](#)
    - setting drop threshold for [175](#)
    - setting pathcost [487](#)
    - setting the default pathcost calculation method [503](#)
  - subinterface configuration mode, summary [6](#)
  - SVI
    - creating a Layer 3 interface on a VLAN [124](#)
  - switchport [540](#)
  - switchport interfaces
    - displaying status of Layer 3 port [340](#)
    - displaying status of native VLAN tagging [340](#)
  - switch shim
    - debugging [70](#)
    - disabling debugging [70](#)
  - switch to router connection
    - enabling Cisco-recommended features [200](#)
  - switch to switch connection
    - enabling Cisco-recommended features [202](#)
  - switch virtual interface
    - See SVI
  - sw-vlan [73](#)
  - system prompts [5](#)
- 
- ## T
- Tab key
    - command completion [1](#)
  - tables
    - characters with special meaning [7](#)
    - mac access-list extended subcommands [187](#)
    - match syntax description [21](#)
    - multipliers [9](#)
    - relationship between duplex and speed commands [516](#)
    - show cable-diagnostics tdr command output fields [288](#)
    - show cdp neighbors detail field descriptions [291](#)

- show cdp neighbors field descriptions [290](#)
- show ip interface field descriptions [372](#)
- show vlan command output fields [471](#)
- show vtp command output fields [475](#)
- special characters [9](#)
- special characters used for anchoring [10](#)
- speed command options [206, 515](#)
- valid interface types [119](#)

TAC

- displaying information useful to TAC [458](#)

TCAM

- debugging spanning tree activities [68](#)

TDR

- displaying cable diagnostic test results [287](#)
- test condition of copper cables [544](#)

temperature readings

- displaying information [309](#)

timer information [313](#)

traffic shaping

- enable on an interface [274](#)

traps, enabling [479](#)

trunk encapsulation

- setting format [540](#)

trunk interfaces

- displaying trunk interfaces information [347](#)

trust state

- setting [131](#)

tunnel ports

- displaying information about Layer 2 protocol [387](#)

TX queues

- allocating bandwidth [552](#)
- returning to default values [552](#)
- setting priority to high [552](#)
- specifying burst size [552](#)
- specifying traffic rate [552](#)

---

## U

UDLD

- displaying administrative and operational status [460](#)
- enabling by default on all fiber interfaces [554](#)
- enabling on an individual interface [556](#)
- preventing a fiber interface from being enabled [556](#)
- resetting all shutdown ports [558](#)
- setting the message timer [554](#)

Unidirectional Link Detection

- See UDLD

unknown multicast traffic, preventing [525](#)

unknown unicast traffic, preventing [525](#)

user EXEC mode, summary [5](#)

username

- setting password and privilege level [560](#)

---

## V

VACLs

- access-group mode [5](#)
- applying VLAN access maps [570](#)
- displaying VLAN access map information [465](#)
- specifying an action in a VLAN access map [8](#)
- specifying the match clause for a VLAN access-map sequence [205](#)
- using a VLAN filter [570](#)

VLAN

- applying an ARP ACL [125](#)
- configuring [563](#)
- converting to RSPAN VLAN [266](#)
- displaying CEF information [353](#)
- displaying CEF next-hop information [353](#)
- displaying information on switch interfaces [363, 367](#)
- displaying information on VLAN switch interfaces [370](#)
- displaying information sorted by group IP address [363, 367](#)
- displaying IP address and version information [363, 367](#)
- displaying Layer 2 VLAN information [462](#)
- displaying statistical information [410](#)
- displaying VLAN information [464](#)
- enabling dynamic ARP inspection [134](#)

- enabling Explicit Host Tracking [158](#)
- enabling guest per-port [86](#)
- enabling guest VLAN supplicant [84, 87](#)
- entering VLAN configuration mode [567](#)
- native frames
  - enabling tagging on all 802.1Q trunk ports [569](#)
- pruning the list for VTP [540](#)
- setting the list of allowed [540](#)
- VLAN Access Control Lists
  - See VACLs
- VLAN access map
  - See VACLs
- VLAN database
  - resetting [268](#)
- VLAN debugging
  - limiting output [49](#)
- VLAN manager
  - debugging [73](#)
  - disabling debugging [73](#)
  - IOS file system error tests
    - debugging [74](#)
    - disabling debugging [74](#)
- VLAN Query Protocol
  - See VQP
- VLAN query protocol (VQPC)
  - debugging [78](#)
- VLANs
  - clearing
    - counters [42](#)
  - clearing hardware logic [26](#)
  - configuring
    - internal allocation scheme [571](#)
  - displaying
    - internal VLAN allocation information [468](#)
    - RSPAN VLANs [472](#)
  - entering VLAN configuration mode [567](#)
- VMPS
  - configuring servers [575](#)
  - reconfirming dynamic VLAN assignments [573](#)
- voice VLANs
  - enabling [521](#)
- VoIP
  - configuring auto-QoS [12](#)
- VQP
  - per-server retry count [574](#)
  - reconfirming dynamic VLAN assignments [573](#)
- VTP
  - configuring the administrative domain name [579](#)
  - configuring the device in VTP client mode [578](#)
  - configuring the device in VTP server mode [582](#)
  - configuring the device in VTP transparent mode [583](#)
  - configuring tunnel encapsulation rate [177](#)
  - creating a VTP domain password [580](#)
  - displaying domain information [474](#)
  - displaying statistics information [474](#)
  - enabling protocol tunneling for [173](#)
  - enabling pruning in the VLAN database [581](#)
  - enabling VTP version 2 mode [584](#)
  - modifying the VTP configuration storage file name [577](#)
  - set drop threshold for [175](#)
- VTP protocol code
  - activating debug messages [76](#)
  - deactivating debug messages [76](#)

